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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,382	12/08/2003	Jean-Charles Souriau	9905/18	4537
757	7590	06/08/2006	EXAMINER	
BRINKS HOFER GILSON & LIONE			CHIAM, DINH D	
P.O. BOX 10395			ART UNIT	PAPER NUMBER
CHICAGO, IL 60610			2883	

DATE MAILED: 06/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

Office Action Summary

Application No.

10/731,382

Applicant(s)

SOURIAU, JEAN-CHARLES

Examiner

Erin D. Chiem

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,10-14 and 19-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-9 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 17,18 is/are objected to.
- 8) ☒ Claim(s) 2,3,10-14 and 19-23 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Invention I, Species A and subspecies B in the reply filed on March 14, 2006 is acknowledged. The traversal is on the ground(s) that the products and the methods of producing the products are not distinct. This is not found persuasive because the examiner provided applicant with an alternate method of producing the fastening stud by micromolding (see US 6,355,198 B1 for reference to this method). Thus have proven that the alternative method of producing the fastening stud by micromolding makes the method claims patentably distinct.

The requirement is still deemed proper and is therefore made FINAL.

The elected invention pertains to claims 1, 4-9, and 15-18 which will be examined.

Claim Objections

Claim 17 and 18 are objected to because of the following informalities: the recitation through-holes lack antecedent basis since claim 1 only recites a through-hole. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 8, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Li (US 2003/018389 A1 "Li" hereinafter).

Regarding claim 1, Li discloses an optical arrangement comprising two parallel plates each with a through-hole (38) forming an optical input/output with a given optical axis and at least partly optical component placed between the plates, the at least partly optical component and a first plate of the two parallel plates comprising first fastening studs (30) placed transversely opposite the plate and connected by first bumps (54) made of a meltable material that when molten is able to selectively wet these first fastening studs in order to optically align the component and the input/output of the first plate, and the two parallel plates comprising second fastening studs (39) placed transversely opposite the plate and connected by second bumps (110) made of a meltable material that when molten is able to selectively wet the second fastening studs in order to optically align the inputs/outputs on the two parallel plates.

Regarding claim 8, the meltable material is metal thus providing an electrical conductor network.

Regarding claim 9, the partly optical component comprises an optical filter (410), see Fig. 4. The diffraction gratings shown in Fig. 4 acts as a filter by diffracting unwanted wavelengths and passing through the desired wavelengths.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Casson et al. (US 5,349,500).

Li discloses the invention of claim 1 except for the contact pad or "studs" are made of a group comprising copper, nickel, silver and gold and that the meltable material is made from a group comprising indium, tin-lead, indium-lead, silver-tin, antimony-tin and tin-silver copper alloys.

Casson discloses a packaged integrated circuit using flip-chip bonding wherein the hemispherically shaped solidified solder (16) is made of tin-lead (col. 4, line 54) and the contacting pads (15) are made of copper (col. 7, lines 16).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize that the group of material provided for the bonding pads and the solder balls are well known in the electro-optical and integrated circuit art. The motivation for using such metal as the solder balls and bonding pads because these metal are substantially inexpensive and are readily available.

Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Moon et al. (US 2004/0023437 A1).

Li discloses the invention of claim 1 except Li does not disclose the plates are mounted between 10 and 100 microns away from one another, the substrates are made of silicon, the through holes forming the input/outputs, at least one of the through-holes forming the inputs/outputs is filled with a material that is transparent to light signals.

Moon discloses the solder bump (110) cannot be formed more than 100 microns [0028], substrates (100) and (200) are silicon. As shown in Fig. 2, a fiber (301) engaged in at least one of the through holes forming the inputs/outputs. Furthermore, in paragraph [0027], Moon discloses filling an index matching material into the fill hole.

It would have been obvious to one having ordinary skill in the art to recognize the teaching of Moon would apply to Li's disclosure regarding the positioning of the plates relative to one another, and providing through holes as optical passages. The motivation for having the solder ball no more than 100 micron is the optimum condition for solder reflow in flip-chip bonding, and filling the through hole with index matching material or an optical fiber is to directly integrate the optical transmission element into the electro-optic arrangement. Such electro-optic arrangement as taught by Li and Moon reduces the parasitic loss of the components.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin D Chiem
Examiner
Art Unit 2883



Frank G. Font
Supervisory Primary Examiner
Technology Center 2800